**LINUX SPECIAL FILE PERMISSIONS**

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| **SPECIAL PERMISSION** | **EFFECT ON FILES** | **EFFECT ON DIRECTORIES** | **EXAMPLE** |
| **setuid**  **chmod symbolic mode = u + s**  **mode = 4**  **- --s --- --- - = underlying bit on**  **- --S --- --- - = underlying bit off** | 1. File **executes as the user that owns the file** not as the user who ran the file.  2. Only effect executable binary files.  3. No effect on general files which are not binary executables such as scripts.  4. Indicated by “**s/S**” in the **execute position of user’s permissions**. | 1. No effect. | 1. /usr/bin/passwd  2. /bin/ping |
| **setgid**  **chmod symbolic mode = g + s**  **mode = 2**  **- --- --s --- - = underlying bit on**  **- --- --S --- - = underlying bit off** | 1. File **executes as the group that owns the file** not as the group of the user who executed the file.  2. Only effect executable binary files.  3. No effect on general files which are not binary executables such as scripts.  4. Indicated by “**s/S**” in the **execute position of group’s permissions**. | 1. Newly created files will **inherit group of their parent directory**.    2. Indicated by “**s/S**” in the **execute position of group owner permissions**. | 1. /usr/bin/wall  2. Used in collaboration when all the files are owned by different users of same group.  3. It **can be used with sticky bit** to create a collaborative directory where all files created by all the users have the same group ownership but the users can only write/modify their own files and all other users can read the files due to the common group ownership of files. |
| **sticky**  **chmod symbolic mode = u + t**  **mode = 1**  **- --- --- --t - = underlying bit on**  **- --- --- --T - = underlying bit off** | 1. No effect. | 1. Users with write permission on the directory **can only rename or remove files that they own**.  2. Indicated by “**t/T**” in the **execute position of other owner permissions**. | 1. /tmp  2. Used for shared directories to prevent users from renaming or deleting each other’s files. |